



AF/IFW

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF APPEALS AND INTERFERENCES**

In re application of:)	Group Art Unit: 3683
)	
Michael E. Ring, et al.)	Examiner: Melody M. Burch
)	
Serial No.: 10/645,035)	Attorney Docket: CRD 01482
)	
Filed: August 21, 2003)	Date: June 1, 2007

For: **UNIVERSAL BRAKE ASSEMBLY (UBX)**

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NON-COMPLIANT APPEAL BRIEF

Sir:

Applicant is in receipt of a Notification of Non-Compliant Appeal Brief from the U.S. Patent and Trademark Office with respect to the above-referenced patent application.

Enclosed, herewith, is a Non-Compliant Appeal Brief as required by 37 CFR 41.37. and a copy of the Notification of Non-Compliant Appeal Brief.

Respectfully submitted,

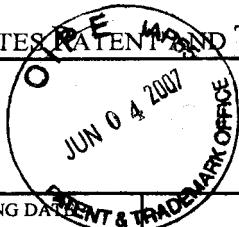
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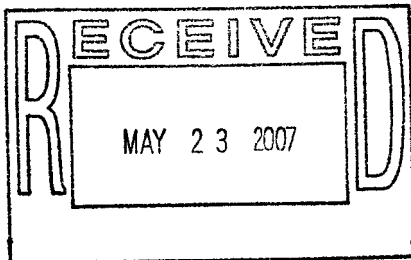
APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/645,035	08/21/2003	Michael E. Ring	CRD 01482	7356

7590 05/21/2007

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EXAMINER

ART UNIT PAPER NUMBER



DATE MAILED: 05/21/2007

Please find below and/or attached an Office communication concerning this application or proceeding.

Notification of Non-Compliant Appeal Brief
(37 CFR 41.37)

Application No.

10/645,035

Applicant(s)

RING ET AL.

Examiner

M. Burch

Art Unit

3683

--The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

The Appeal Brief filed on 02 April 2007 is defective for failure to comply with one or more provisions of 37 CFR 41.37.

To avoid dismissal of the appeal, applicant must file an amended brief or other appropriate correction (see MPEP 1205.03) within **ONE MONTH or THIRTY DAYS** from the mailing date of this Notification, whichever is longer.
EXTENSIONS OF THIS TIME PERIOD MAY BE GRANTED UNDER 37 CFR 1.136.

1. ☐ The brief does not contain the items required under 37 CFR 41.37(c), or the items are not under the proper heading or in the proper order.
2. ☒ The brief does not contain a statement of the status of all claims, (e.g., rejected, allowed, withdrawn, objected to, canceled), or does not identify the appealed claims (37 CFR 41.37(c)(1)(iii)).
3. ☐ At least one amendment has been filed subsequent to the final rejection, and the brief does not contain a statement of the status of each such amendment (37 CFR 41.37(c)(1)(iv)).
4. ☐ (a) The brief does not contain a concise explanation of the subject matter defined in each of the independent claims involved in the appeal, referring to the specification by page and line number and to the drawings, if any, by reference characters; and/or (b) the brief fails to: (1) identify, for each independent claim involved in the appeal and for each dependent claim argued separately, every means plus function and step plus function under 35 U.S.C. 112, sixth paragraph, and/or (2) set forth the structure, material, or acts described in the specification as corresponding to each claimed function with reference to the specification by page and line number, and to the drawings, if any, by reference characters (37 CFR 41.37(c)(1)(v)).
5. ☐ The brief does not contain a concise statement of each ground of rejection presented for review (37 CFR 41.37(c)(1)(vi)).
6. ☐ The brief does not present an argument under a separate heading for each ground of rejection on appeal (37 CFR 41.37(c)(1)(vii)).
7. ☐ The brief does not contain a correct copy of the appealed claims as an appendix thereto (37 CFR 41.37(c)(1)(viii)).
8. ☐ The brief does not contain copies of the evidence submitted under 37 CFR 1.130, 1.131, or 1.132 or of any other evidence entered by the examiner and **relied upon by appellant in the appeal**, along with a statement setting forth where in the record that evidence was entered by the examiner, as an appendix thereto (37 CFR 41.37(c)(1)(ix)).
9. ☐ The brief does not contain copies of the decisions rendered by a court or the Board in the proceeding identified in the Related Appeals and Interferences section of the brief as an appendix thereto (37 CFR 41.37(c)(1)(x)).
10. ☒ Other (including any explanation in support of the above items):

c(3) The status of all claims on appeal has not been identified.


Darlene Brown
5712721559



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
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For: UNIVERSAL BRAKE ASSEMBLY

COMMISSIONER FOR PATENTS
P.O. BOX 1450
ALEXANDRIA, VA 22313

JAMES O. RAY

FOR

APPELLANT

Sir:

The following appeal brief for Appellant under Rule 1.192 is submitted pursuant to the Notice of Appeal and Request for Oral Hearing filed on January 29, 2007 in the above-identified application and revised to comply with the requirements of the Notification of Non-Compliant Appeal Brief mailed on May 21, 2007. Section 3 now clearly identifies that Claims 1-13 and 16-21 are on appeal. Detail grounds of rejection to be reviewed on appeal can be found in original section 6.

(1) Real Party in Interest

The real part in interest of the present application is Westinghouse Airbrake Technology Corporation.

(2) Related Appeals and Interferences

There are no appeals or interferences pending which directly affect this application.

(3) Status of Claims

Claims 1-13 and 16-21 are currently pending in this application. Claims 14-15 are canceled. Claims 1-9, 11-13 and 16-21 are finally rejected and claim 10 is objected to as per the Office Action dated October 30, 2006. Claims 1-13 and 16-21 are on appeal.

(4) Status of Amendments

A telephonic interview between Examiner and Applicant's representative was held on August 7, 2006 and an amendment incorporating the subject matter discussed during the interview was filed on August 14, 2006. In the Interview Summary dated August 14, 2007, Examiner indicated that "proposed amendment appeared to overcome the Ring reference. However, the amendment

did not result in allowance of the claims as the Examiner stated in the Office Action dated October 30, 2007 that "Applicant's arguments with respect to the claims have been considered but are moot in view of the new grounds of rejection."

(5) Summary of claimed subject matter

Claim:

1. An actuating member 60 for a railway vehicle brake assembly 10, such railway vehicle brake assembly 10 having an air bag actuator 50 incorporated therein, said air bag actuator 50 having at least one inflatable air bag spring 52, said actuating member 60 comprising:

(a) a first substantially vertically disposed plate like member 66, said first substantially vertically disposed plate like member 66 having a first substantially planar surface engageable with a first surface of a second substantially vertically disposed plate like member 54 attached to such air bag actuator 50, said first substantially vertically disposed plate like member 66 exposing at least a first portion of an exterior surface of such at least one inflatable air bag spring 52 to an atmospheric operating environment characterized by a presence of detrimental extraneous foreign material when such railway car mounted brake assembly 10 is in use; **(Page 12, line 14)**

(b) a substantially horizontally disposed plate like member 64 connected to said first substantially vertically disposed plate like member 66 adjacent a bottom edge thereof and extending substantially perpendicular to said first substantially planar surface of said first substantially vertically disposed plate like member 66 for shielding at least said first portion of said exterior surface of such air bag actuator 50 from said detrimental extraneous foreign material; and **(Page 14, lines 12-15)**

(c) a means 72, 74 connected to a radially opposed second surface of said first substantially vertically disposed plate like member for securing said actuating member 60 to a control linkage 14 of such railway vehicle brake assembly 10. **(Page 14, lines 9-11)**

2. An actuating member 60, according to claim 1, wherein said actuating member 60 further includes a first plate like member 76 connected to an upper surface of said substantially horizontally disposed member 64 and to said first planar surface of said first substantially vertically disposed plate like member 66 adjacent a first side edge thereof and extending substantially perpendicular to at least said substantially horizontally disposed member 64 for shielding at least a second portion of such air bag actuator 50 from said detrimental

extraneous foreign material and for providing added strength between said first substantially vertically disposed member 66 and said substantially horizontally disposed member 64. **(Page 14, lines 12-15)**

3. An actuating member 60, according to claim 2, wherein said actuating member 60 further includes a second plate like member connected to said upper surface of said substantially horizontally disposed member 64 and to said first planar surface of said first substantially vertically disposed plate like member 66 adjacent a second side edge thereof and extending substantially perpendicular to at least said substantially horizontally disposed member 64 for shielding at least a third portion of such air bag actuator from said detrimental extraneous foreign material and for providing added strength between said first substantially vertically disposed member 66 and said substantially horizontally disposed member 64.

4. An actuating member 60, according to claim 1, wherein said first substantially vertically disposed plate like member 66 includes at least one mounting aperture 68 formed therethrough for enabling securing of such air bag actuator 50 to said first substantially vertically disposed plate like member 66. **(Page 12, lines 16-17)**

5. An actuating member 60, according to claim 1, wherein said means connected to said radially opposed second surface of said substantially first vertically disposed plate like member 66 for securing said actuating member 60 to such control linkage 14 of such railway vehicle brake assembly 10 includes at least one plate member 72 having an aperture 74 formed therethrough and a pin member 19 disposed in said aperture for securing said at least one plate member 72 to such control linkage 14. **(Page 14, lines 9-11)**

6. An apparatus 80 for mounting an air bag actuator 50 to at least one brake beam, said air bag actuator 50 having at least one inflatable air bag spring 52, said apparatus comprising:

(a) a first substantially vertically disposed plate like member 82 having a planar surface portion for engagement with a substantially planar surface portion of a second substantially vertically disposed plate like member 56 connected to such air bag actuator 50, said first substantially vertically disposed plate like member 82 exposing at least a first portion of an exterior surface of such at least one inflatable air bag spring 52 to an atmospheric operating environment characterized by a

presence of detrimental extraneous foreign when such railway car mounted brake assembly 10 is in use; **(Page 12, line 24)**

(b) a guide means 84 directly connected to and disposed closely adjacent a first outer edge of and substantially perpendicular to said planar surface portion of said first substantially vertically disposed plate like member 82 for guiding and alignment during reciprocal motion of such air bag actuator 50; and **(Page 14, lines 15-21)**

(c) a securing means 98, 100 connected to said first substantially vertically disposed plate like member 82 for enabling attachment of said apparatus 80 to a rigid structure. **(Page 13, lines 3-11)**

7. An apparatus, according to claim 6, wherein said apparatus includes a second guide means 94, said second guide means 94 directly connected to and disposed closely adjacent a second outer edge of and substantially perpendicular to said planar surface portion of said first substantially vertically disposed plate like member 82 for guiding and alignment during reciprocal motion of such air bag actuator 50. **(Page 14, lines 15-21)**

8. An apparatus, according to claim 6, wherein said planar surface portion of said first substantially vertically disposed

plate like member 82 includes at least one aperture 88 formed therethrough for enabling attachment to such air bag actuator 50. **(Page 12, lines 20-24 and Page 13, lines 1-2)**

9. An air spring actuator assembly 50, said air spring actuator assembly 50 comprising: **(Page 12, lines 5-6)**

(a) at least one air bag spring 52 having at least a first portion of an exterior surface exposed to an atmospheric operating environment characterized by a presence of detrimental extraneous foreign material during use of said air spring actuator assembly 50; **(Page 12, lines 8-11)**

(b) a first substantially vertically disposed plate like member 66, said first substantially vertically disposed plate like member 66 having a first substantially planar surface engageable with a first surface of a second substantially vertically disposed plate like member 54 attached to said at least one air bag spring 52; **(Page 12, lines 11-14)**

(c) a substantially horizontally disposed plate like member connected 64 to said first substantially vertically disposed plate like member 66 adjacent a bottom edge thereof and extending substantially perpendicular to said first substantially planar surface of said first substantially vertically disposed plate like member 66 for shielding said at least said first portion of said exterior surface of said at

least one air bag spring 52 from said detrimental extraneous foreign material; **(Page 14, lines 12-15)**

(d) a means connected to a radially opposed second surface of said first substantially vertically disposed plate like member 66 for securing said first substantially vertically disposed plate like member 66 to a control linkage 14 of a railway vehicle brake assembly 10; **(Page 14, lines 9-11)**

(e) a third substantially vertically disposed plate like member 82 having a second planar surface portion for engagement with a substantially planar surface portion of a ~~forth~~ fourth substantially vertically disposed plate like member 56 connected to said at least one air bag spring 52; **(Page 12, lines 20-24)**

(f) a guide means 70, 84 connected to and disposed closely adjacent a first outer edge of and substantially perpendicular to at least one of said first substantially planar surface and said second planar surface portion of a respective one of said first and said third substantially vertically disposed plate like member 66, 82 for guiding and alignment during reciprocal motion of such air bag spring 52; and **(Page 14, lines 15-21)**

(g) a securing means 98, 100 connected to said third substantially vertically disposed plate like member 82 for enabling attachment of said air spring actuator assembly 50 to a rigid structure. **(Page 13, lines 3-11)**

10. An air spring actuator assembly 50, according to claim 9, wherein said means connected to a radially opposed second surface of said first substantially vertically disposed plate like member 66 for securing said first substantially vertically disposed plate like member 66 to a control linkage 14 of a railway vehicle brake assembly 10 includes a push rod and a shield member 72 for substantially protecting said at least one air bag spring from foreign matter damage. **(Page 14, lines 9-11)**

11. An air spring actuator assembly 50, according to claim 9, wherein said air spring actuator assembly further includes means 77, 86 disposed therein for limiting reciprocal motion of said air spring actuator 50 during evacuation of air pressure from said at least one air bag spring. **(Page 15, lines 15-19)**

12. An air spring actuator assembly 50, according to claim 11, wherein said means for limiting reciprocal motion of said brake actuator is a rigid member disposed internally within said air spring actuator. **(Page 15, lines 19-21)**

13. An air spring actuator assembly, according to claim 9, wherein said air spring actuator 50 further includes an air inlet 41 in communication with said at least one air bag spring

52. **(Page 13, lines 12-20)**

14.-15. (Canceled)

16. An air spring actuator assembly, according to claim 9, wherein said air spring actuator 50 further includes a means for visual determination of a travel length of said air spring actuator 60. **(Page 15, lines 9-14)**

17. An air spring actuator assembly, according to claim 16, wherein said visual travel determination means is a linear measuring device 92. **(Page 15, lines 9-14)**

18. An air spring actuator assembly, according to claim 9, wherein said air spring actuator assembly 50 further includes means 41, 97 disposed therein for controlling volume of air in said at least one air bag spring 52. **(Page 13, lines 12-22)**

19. In a railway car mounted brake assembly 10 including a pair of brake beams 2, 3 mounted at each end of such car mounted brake assembly 10, each of such brake beams 2, 3 having a brake head 12 attachable to each end thereof, each of such brake heads 12 carrying a brake shoe thereon, each of such brake heads 12 being positioned for engagement of a respective one of such

brake shoes with a respective railway vehicle wheel during a brake application, each of such brake beams 2, 3 having a control linkage pivotally attached thereto 14, 16, a first force transmitting member 28 attached to opposed first ends of each of such control linkages and a second force transmitting member 32 attached to a second end of one of such control linkage and longitudinally extending toward a respectively opposed second end of such control linkage: the improvement comprising an air spring actuator 50 connectable to and disposed intermediate such second force transmitting member 32 and such second control linkage 24 for applying and releasing such brake beams 2, 3, said air spring actuator 50 comprising: **(Page 9, lines 16-26 and page 10 lines 1-15)**

(a) a first substantially vertically disposed plate like member 66 having a first substantially planar surface and a means 72, 74 connected to said first substantially vertically disposed plate like member 66 for securing said air spring actuator 50 to such second control linkage; **(Page 14, lines 9-11)**

(b) a second substantially vertically disposed plate like member 82 having a second substantially planar surface and a means connected 98, 100 to said second substantially vertically disposed plate like member 82 for securing said air spring actuator 50 to one of such brake beam 2, such second force

transmitting member 32 and a combination thereof; and **(Page 12, lines 20-24)**

(c) at least one inflatable air bag spring 52 having a pair of substantially vertically disposed planar surfaces 54, 56 for engagement with and attachment to said first substantially planar surface of said first substantially vertically disposed plate like member 66 and said second substantially planar surface of said second substantially vertically disposed plate like member 82, whereby selective inflation and deflation of said at least one inflatable air bag spring 52 in a longitudinal direction enables a reciprocal motion thereof to move such control linkages 14, 16 and such force transmitting members 28, 32 for actuating and deactuating such brake beams 2, 3, wherein an exterior surface of said at least one inflatable air bag spring 52 is at least partially exposed within such railway car mounted brake assembly 10 to an atmosphere when such railway car mounted brake assembly 10 is in use. **(Page 12, lines 8-14)**

20. The improvement according to claim 19, wherein said air spring actuator 50 includes means 64 attached to said first substantially vertically disposed plate like member 66 for shielding at least a portion of said at least one inflatable air bag spring 52 from detrimental extraneous foreign material. **(Page 14, lines 12-15)**

21. The improvement according to claim 19, wherein said air spring actuator 50 includes means 70, 78, 84, 94 disposed with said first substantially vertically disposed plate like member 66 and said second substantially vertically disposed plate like member 82 for guiding and alignment thereof during said reciprocal motion of said at least one inflatable air bag spring 52. **(Page 14, lines 15-21).**

(6) Grounds of rejection to be reviewed on appeal

Whether drawings are objectable to under 37 CFR 1.83(a) because they do not show every feature of the invention specified in the claims.

Whether claims 1,2,5,6,9,11,12,13, and 18 are unpatentable under 35 U.S.C. 102(b) as being anticipated by US Patent 4711464 to Bilas.

Whether claims 1-9 and 13 are unpatentable under 35 U.S.C. 102(b) as being anticipated by US Patent 2879077 to Chalmers.

Whether claims 1,2,5,6,9,11, 12, 13, and 18 are unpatentable under 35 U.S.C. 103(a) over US Patent 4711464 to Bilas in view of US Patent 6142480 to Streitman et al.

Whether claims 1-9 and 13 are unpatentable under 35 U.S.C. 103(a) over US Patent 2879077 to Chalmers in view of US Patent 6142480 to Streitman et al.

Whether claims 16 and 17 are unpatentable under 35 U.S.C. 103(a) over Bilas in view of Streitman et al. as applied to claim 9 above, and further in view of US Patent 4846785 to Cassou et al.

Whether claims 19, 20, and 21 are unpatentable under 35 U.S.C. 103(a) over Admitted prior art recited above the "improvement" phrase in claim 19 in view of Bilas.

Whether claims 19-21 are unpatentable under 35 U.S.C. 103(a) over Admitted prior art in view of US Patent 4711464 to Bilas and further in view of US Patent 6142480 to Streitman et al.

Whether claims 19, 20, and 21 are unpatentable under 35 U.S.C. 103(a) over Admitted prior art recited above the "improvement" phrase in claim 19 in view of Chalmers.

Whether claims 19-21 are unpatentable under 35 U.S.C. 103(a) over Admitted prior art in view of Chalmers and further in view of US Patent 6142480 to Streitman et al.

(7) Argument

Due to the multiplicity of objections and rejections, a discussion of the background of the invention and a summary of the invention appear below first.

I. Background of the Invention

Truck mounted braking systems have been in widespread use on railway cars for many years prior to the present invention. These systems comprise a series of force transmitting members, levers and linkages which function to move a group of brake shoes against the wheels of a railway vehicle to effect stoppage of such railway vehicle. A pneumatically activated brake cylinder is typically provided in the braking system to initiate movement of this series of force transmitting members, levers and linkages to apply the brakes of the railway vehicle mounted to a truck assembly of said railway vehicle.

A well known type of truck mounted braking system is a TMX.RTM. truck mounted braking system (TMX.RTM. is a registered trademark to Westinghouse Airbrake Technology Corporation, the assignee of the present invention). A currently used pneumatically activated brake cylinder for truck mounted braking systems generally comprises of an air cylinder piston which moves in a forwardly direction within a cylindrical member upon the application of pneumatic pressure thereto. A seal and/or diaphragm is provided on or adjacent a first end of the piston.

This seal and/or diaphragm contacts the inner surface of the cylindrical member so as to provide an airtight chamber at one end of the cylindrical member such that application of pneumatic pressure therein and against the first end of the piston enables forward movement of the piston. A piston rod is attached at a second end of the piston and moves in response to the movement of the piston. An opposite end of the piston rod is connected to the end of a push rod which is, in turn, connected to a cylinder force transfer lever. This cylinder force transfer lever is connected through a series of force transmitting members and linkages so as to activate a braking sequence and apply the brake shoes to the vehicle wheels.

A disadvantage of this type of pneumatically activated brake cylinder is that due to regulations regarding the amount of air pressure which must be supplied into the brake cylinder, it is sometimes difficult to control the movement and/or force applied by the piston. Some countries require that a certain amount of pressure, such as at least 1-1.15 bar greater than atmosphere, be applied within the brake cylinder. During light load conditions, too much force applied by the piston can cause the brake shoe forces to be greater than necessary resulting in wheel skid.

Another disadvantage is that care must be taken in the maintenance of the seals and/or diaphragms within the

cylindrical member to ensure that leaking of air does not occur, resulting in a loss of pressure and a reduced amount of force being applied by the piston/piston rod assembly. Also, when cracking and/or deterioration of the seals and/or diaphragms does occur, the air brake cylinder must be completely disassembled in order to repair or replace the defective components. The difficulty in determining the condition of the components lies in that the components are contained within the cylindrical member thus resulting in a need for disassembly for inspection purposes.

An additional disadvantage of the currently used air brake cylinders is their inability to accommodate piston bail or misalignment without leaking air. In addition, it is impractical to visually determine the proper relationship between the actual stroke of the cylinder and the brake shoe force during braking.

United States Patent 6,116,385, Dual Force Range TMX Cylinder Using an Airspring Actuator teaches a pneumatically activated brake cylinder which comprises a cylindrical casing engaged with a railway vehicle braking system. A hollow piston assembly having a first surface and an opposed second surface is mounted for reciprocal movement within the cylindrical casing. There is at least one air spring actuator engageable with the first surface of the hollow piston assembly and an opposed inner

surface of such cylindrical casing. An air communication means is in fluid communication with an interior portion of the at least one air spring actuator for allowing the application and removal of air from the air spring actuator during a brake application or a brake release, and a piston rod assembly is associated with the opposed second end of the hollow piston assembly. This piston rod assembly is capable of movement in an outward direction from the cylindrical casing upon actuation of the air spring actuator to initiate a braking sequence for the railway vehicle braking system. The air communication means comprises an air inlet means which is provided in the cylindrical casing and the air spring actuator to enable application of pneumatic pressure within the air spring to form a first air cavity.

A packing cup is provided on the hollow piston assembly producing a seal between the hollow piston assembly and the inner surface of the cylindrical member to form a second air cavity. An air inlet flange is also provided on the cylindrical member to enable the application into and the evacuation of air from the second cavity.

The teaching of United States Patent 6,116,385, Dual Force Range TMX Cylinder Using an Airspring Actuator is incorporated herein by reference thereto.

Although the TMX.RTM braking system offers improved performance of the airbrake cylinder in certain applications, there is a need for a simpler device having less components.

II. Instant Invention

The present invention comprises an improved truck-mounted brake assembly, generally designated 10, for a railway car (not shown). This brake assembly 10 comprises brake beams, generally designated 2 and 3, which are substantially identical. Each of the brake beams 2 and 3 includes a compression member 4, a tension member 6 and a strut member 8. The opposite ends of the compression member 4 and the tension member 6 may be permanently connected together, preferably by welding, along an outer segment (not shown) at the opposite ends of the compression member 4 and the tension member 6. See page 9, lines 16-26.

At a location substantially midway between their opposite ends, the compression member 4 and the tension member 6 of the, respective, brake beams 2 and 3 are spaced apart sufficiently to allow connection of the strut member 8 therebetween. Mounted on the respective outer end segments of the brake beams 2 and 3 are brake heads 12. See page 10, lines 1-6.

A pair of force-transfer levers 14 and 16 are pivotally connected by pins 18 to the strut member 8 of the respective brake beams 2 and 3. One end of the respective force-transfer levers 14 and 16 is interconnected via a force-transmitting

member 28, which may be in the form of a slack adjuster device. The opposed end 36 of the force-transfer lever 16 is connected to an at least one brake actuator assembly 40 by connecting means 31 via a force-transmitting member or a return push rod assembly 32. See page 10, lines 7-15.

In further reference to Figs. 1 and 2 when a brake application is made, pressurization of the air spring actuator, generally designated 50, will result in movement of pushrod/shield, generally designated 60, connected with force transfer lever 14 in a forward direction to effect a counterclockwise rotation of said force transfer lever 14. The force transfer lever 14, in turn, actuates the slack adjuster assembly 28 to effect counterclockwise rotation of the force-transfer lever 16 and consequent actuation of the return push rod assembly 32. See page 10, lines 16-23 and page 11, lines 1-2.

The force-transfer levers 14 and 16, along with the slack adjuster assembly 28, the return push rod assembly 32 and the brake actuator assembly 40 comprise a brake beam actuating linkage that interconnects the, respective, brake beams 2 and 3 via the pivot pins 18 and thus the required brake actuation forces effectively act along these pivot pins 18. The resultant of these forces is shown at X. Because the slack adjuster assembly 28 acts as a rigid member during a brake application,

it is important that the length of the slack adjuster assembly 28 be allowed to increase with brake shoe wear and/or loss of a brake shoe during service so that movement of the pushrod/shield 60 will enable such brake beams 2 and 3 to be moved apart by the brake beams linkage until brake shoe engagement with the tread surface of the vehicle wheels occurs. See page 11, lines 3-16.

Any well-known technique may be used to position and/or mount the brake actuator assembly 40 to the braking system. For example, such brake actuator assembly 40 can be connected to both the strut member 8, adjacent one side thereof, and to the compression member 4 in the space located between the compression member 4 and the tension member 6. In this particular arrangement, the weight of the brake actuator assembly 40 and the force-transmitting members is carried by the brake beams 2 and 3, which are, in turn, supported by the truck side frames (not shown). A connecting means 31 is provided for connecting a back portion of the mounting member with the return push rod 32. See page 11, lines 17-24 and page 12, lines 1-4.

In reference to FIG. 3 brake actuator assembly 40 consists of at least one air spring actuator 50 disposed within pushrod/shield member 60 and a mounting bracket member, generally designated 80. At least one air spring 52 is substantially attached to a first surface 54 and an opposed

second surface 56 substantially coplanar to said first surface 54. A pushrod/shield 60 is connected to the first surface 54 of the air spring 52 wherein at least one mounting member 58 will cooperate with at least one mounting cavity 68 disposed within first surface 66 of said pushrod/shield 60. See page 12, lines 5-14.

In the presently preferred embodiment this at least one mounting member 58 and at least one mounting cavity 68 are four mounting members 58 and four mounting cavities 68 respectively. This pushrod/shield 60 is capable of movement in an outward direction upon actuation of the air spring 52 to initiate a braking sequence of the railway vehicle braking system. A mounting bracket 80 is connected to the opposed second surface 56 of the air spring 52 wherein at least one mounting member 58 cooperates with an at least one mounting cavity 88 disposed within surface 82 of the mounting bracket 80. In the presently preferred embodiment there are four mounting members 58 and four mounting cavities 88 respectively. See page 12, lines 15-24 and page 13, lines 1-2.

In further reference to FIG. 2, at least one cavity 98 is provided for attachment of such mounting bracket 80 to the compression member 4. In the presently preferred embodiment there are two cavities 98. Furthermore, a support portion 100 substantially engages strut member 8 having tab member 102 and

at least one mounting cavity 104 for attachment to such strut member 8 is provided to substantially minimize force loads acting on the brake actuator 40 upon actuation of the hand brake mechanism (not shown). See page 13, lines 3-11.

The air spring 52 includes air communication means 41, best shown in FIG. 2, in fluid communication with an interior portion of at least one air spring 52 for supplying air pressure to such at least one air spring 52 to cause actuation of this air spring 52 during a brake application and also for removing or evacuating air from the air spring 52 to cause deactivation of the air spring 52 during a brake release. In the presently preferred embodiment, this air communication means 41 is at least one air inlet port. Cavity 97 disposed within the mounting bracket is substantially aligned with the air communication means 41 to enable application of the pneumatic pressure within air spring 52. Forces generated upon pressurization of the air spring 52 vary with the respect to their travel height due to the natural characteristics of the rubber. The pressurization and discharge of the air spring actuator is regulated by an external control circuit (not shown). Furthermore, these forces vary at the constant pressure applied to the air spring 52. See page 13, lines 12-24 and page 14, lines 1-4.

Any commercially available inflatable spring may be used as long as this spring is capable of withstanding the amount of air

pressure applied thereto and capable of providing sufficient force to move pushrod/shield 60 to initiate a braking sequence. See page 14, lines 5-8.

At least one cavity 74 is provided in at least one force transfer lever engaging portion 72 of such pushrod/shield 60 for connection with force-transfer levers 14 and 16 by pins 19. In further reference to FIG. 3, pushrod/shield 60 having second and third surface portions 64 and 76 substantially horizontal to first surface portion 66 protects air spring actuator 50 from foreign objects during railway vehicle movement. First edge portion 70 and second edge portion 78 engage first edge portion 84 and second edge portion 94 respectively of the mounting bracket 80 for guiding the air spring actuator 50 during reciprocal movement of such air spring actuator 50 to provide for linkage bail and/or misalignment without applying loads to the air spring actuator 50. See page 14, lines 9-21.

In the presently preferred embodiment, edge portions 70, 78, 84 and 94 are simple edge portions produced by either a casting or forging method. Alternatively, at least one wear resistant member 96 of predetermined material is attached to such edge portions 84 and 94, as shown in FIG. 4, to substantially minimize damage to edge surfaces 70 and 78 during railway vehicle motion. Yet alternatively, damage to edge surfaces 70 and 78 is substantially minimized by such simple

edge portions 84 and 94 having second surface portions 85 and 95 substantially perpendicular to the edge surfaces 84 and 94 respectively as shown in FIG. 5. See page 14, lines 22-24 and page 15, lines 1-8.

In further reference to FIG. 3, a linear travel height indicator 92 is attached to surface portion 90 of the mounting bracket 80 permitting determination of the forces generated upon pressurization of the air spring 52 that vary with respect to their travel height due to the natural characteristics of the rubber. See page 15, lines 9-14.

In the preferred embodiment, upon discharge of the spring actuator 50, stop portion 77 of pushrod/shield 60 will engage a third edge portion 86 of the mounting bracket 80 preventing further motion of the spring actuator 50 and, more particularly, preventing damage to air spring 52. Alternatively, stop 77 can be incorporated and disposed internally within air spring 52 having substantially identical functionality as edge portion 86. See page 15, lines 15-21.

Furthermore, it is preferred that edge portion 86 be produced by a casting or forging process. Alternatively, at least one wear resistant member 93 of predetermined material is attached to edge portion 86 to substantially minimize damage to edge surface 77 during railway vehicle motion. Yet alternatively, damage is substantially minimized with edge

portion 86 having an adjoining surface portion 87 substantially perpendicular to said edge portion 86. See page 15, lines 22-24 and page 16, lines 1-5.

Currently used brake cylinder assemblies may be retrofitted with the air spring actuator assembly of the present invention by substantially replacing the cylinder assembly with the air spring actuator assembly having a predetermined push rod/shield and mounting bracket arrangements to interface with the existing brake assembly arrangement. See page 16, lines 6-11.

(7.1) Objection to the drawings

Objection to drawings under 37 CFR 1.83(a) because they do not show every feature of the invention specified in the claims.

A. Examiner's Objection

The Examiner contends that the push rod and shield recited in claim 10 must be shown or the feature(s) canceled from the claim(s). Examiner notes that a shield 60 is shown, but no push rod is shown as described in the specification and as claimed.

B. Response to the objection

Pushrod/shield member, generally designated as 60, is first recited on page 12, line 7. On page 12, lines 18-20, the present invention recites that "This pushrod/shield 60 is capable of movement in an outward direction upon actuation of the air spring 52 to initiate a braking sequence of the railway

vehicle braking system". Shield is shown by portions 64, 66 and 76 and pushrod is shown by members 72 and 74 which are employed for connection to the linkage 14. As it is well known, during braking application, as pushrod/shield 60 moves in an outward direction, members 72 and 74 push the connected end of the linkage 14 in order to apply brakes.

Therefore, "pushrod" is shown in the drawings.

(7.2) Rejection under 35 U.S.C. 102(b) over US Patent 4711464 to Bilas.

Claims 1, 2, 5, 6, 9, 11, 12, 13, and 18

Appellant respectfully disagrees with the Examiner's rejections for the following reasons.

Claim 1

The Examiner's contention that Claim 1 is unpatentable under 35 U.S.C. 102(b) as being anticipated by Bilas (US Patent 4711464) is not believed to be well founded. It is the Examiner's position that Bilas anticipates every single element of the present invention.

A. Examiner's rejections

The Examiner contends that regarding claim 1, Bilas shows in figure 1 an actuating member capable of being used for a railway vehicle brake assembly, such vehicle brake assembly having an air bag actuator 10 incorporated therein, said

actuating member comprising: a first substantially vertically disposed plate like member or right side of element 14, said first substantially vertically disposed plate like having a first substantially planar surface shown near the lead line of 14 engageable with a first surface of a second substantially vertically disposed plate like member or right side wall 11 attached to such air bag actuator, a substantially horizontally disposed plate like member 22 connected to the first substantially vertically disposed plate like member adjacent a bottom edge thereof and extending substantially perpendicular to the first planar surface of the first vertically disposed plate member for shielding at least a first portion (or particularly the bottom portion) of the air bag actuator from foreign material as shown, and a means 15 connected to a radially opposed second surface of the first vertically disposed plate like member via intervening elements such as element 13 for securing the actuating member to a control linkage of the assembly.

B. Response to Rejections

In the rejection, Examiner asserted that "right side of element 14 is a first substantially vertically disposed plate like member" and that "the first substantially vertically disposed plate like has a first substantially planar surface shown near the lead line of 14".

Examiner's attention is directed to column 1 lines 65-68 wherein Bilas teaches "An adjustable chamber reduction partition 13 is movably positioned within the housing 10 adjacent the closure plate 12 and has a down turned annular guide lip 14 extending from its perimeter edge ...". Further in column 2 lines 18-21, Bilas teaches "The air spring 19 is positioned on a movable head plate 22 having an outer diameter slightly less than that of said interior of said housing 10 as defined by said side wall 11".

It is clear that since Bilas teaches a housing 10 having a round cross-section and further teaches an annular guide lip (ring) 14, Bilas does not anticipate or suggests "first substantially vertically disposed plate like member having a first substantially planar surface" since an annular ring is not a plate like member and does not have a substantially planar surface. Appellant notes that annular ring cannot have a "right side" as understood by the Examiner.

Therefore, Bilas prior art reference does not anticipate each and every limitation of the present invention of the independent claim 1.

Claim 2

A. Examiner's rejections

The Examiner contends that regarding claim 2, Bilas shows in figure 1 wherein the actuating member further includes a first plate like member left side of element 14 connected to an upper surface of the substantially horizontally disposed member via intervening elements and to the first planar surface of the first substantially vertically disposed plate like member adjacent a first side edge thereof and extending substantially perpendicularly to at least the substantially horizontally disposed member for shielding at least a second portion (or top left portion) of such air bag actuator from the detrimental extraneous foreign material and for providing added strength between the first substantially vertically disposed member and the substantially horizontally disposed member.

B. Response to Rejections

Since Appellant stipulated above that element 14 of Bilas is an annular ring, such ring cannot include a plate like member of "left side of element 14" as asserted by the Examiner.

Therefore, Bilas prior art reference does not anticipate each and every limitation of the present invention of the dependent claim 2.

Claim 5

A. Examiner's rejections

The Examiner contends that regarding claim 5, Bilas shows in figure 1 the means including at least one plate member 16 having an aperture formed therethrough and a pin member 15 disposed in the aperture for securing the at least one plate member to such control linkage.

B. Response to Rejections

Appellant respectfully disagrees with the Examiner's rejections for the following reasons.

Regarding claim 1, the Examiner erroneously asserted that element 14 of Bilas anticipates the first substantially vertically disposed plate like member of the present invention. Following the logic of the Examiner's assertion, the element 16 of Bilas must be then connected to its element 14. However, Bilas clearly shows in Figure 1, that the element 16 is connected to the closure plate 12 of the housing 10 and not to the member 14. Furthermore, Billas discloses in column 2 lines 3-4 that element 16 is a "threaded drive fitting" which, Appellant asserts, is not a plate member 72 of the present invention of claim 5. Additionally, Bilas clearly shows in FIG. 4 that fitting 16 and pin 15 are not connected to any control linkage.

Therefore, Bilas prior art reference does not anticipate each and every limitation of the present invention of the dependent claim 5.

Claim 6

The Examiner's contention that Claim 6 is unpatentable under 35 U.S.C. 102(b) as being anticipated by Bilas (US Patent 4711464) is not believed to be well founded. It is the Examiner's position that Bilas anticipates every single element of the present invention of independent claim 6.

A. Examiner's rejections

The Examiner contends that regarding claim 6, "Bilas shows in figure 1 an apparatus for mounting an air bag actuator to at least one brake beam, the air bag actuator having at least one inflatable air bag spring 19, the apparatus comprising: a first substantially vertically disposed plate like member or right side of element 14 having a planar surface portion for engagement with a substantially planar surface portion of a second substantially vertically disposed plate like member or right side of element 11 connected to such air bag actuator, the first substantially vertically disposed plate like member exposing at least a first portion of an exterior surface of such at least one inflatable air bag spring to an atmospheric operating environment by way of its cooperation with element 14

which has an aperture communicating with aperture 17 exposed to atmosphere characterized by a presence of detrimental extraneous foreign when such car mounted brake assembly is in use, a guide means 13 directly connected to and disposed closely adjacent a first outer edge of and substantially perpendicular to the planar surface portion of the first substantially vertically disposed plate like member for guiding and alignment during reciprocal motion of such air bag actuator and a securing means 15 connected to the first substantially vertically disposed plate like member via intervening element such as element 13 for enabling attachment of the apparatus to a rigid structure".

B. Response to Rejections

Appellant respectfully disagrees with the Examiner's rejections for the same reason that the annular guide lip (ring) 14 is not a plate like member and cannot have substantially planar surface. Furthermore, Bilas specifically recites that element 14 and not element 13 is a "guide means". Therefore, the assertion by the Examiner that Bilas teaches "guide means 13" is a mere allegation.

Therefore, Bilas prior art reference does not anticipate each and every limitation of the present invention of the dependent claim 6.

Claim 9

The Examiner's contention that Claim 9 is unpatentable under 35 U.S.C. 102(b) as being anticipated by Bilas (US Patent 4711464) is not believed to be well founded. It is the Examiner's position that Bilas anticipates every single element of the present invention of independent claim 9.

A. Examiner's rejections

The Examiner contends that regarding claim 9, "Bilas shows in figure 1 an air spring actuator assembly, the air spring actuator assembly comprising: at least one air bag spring 19 having at least a first portion of an exterior surface exposed to an atmospheric operating environment via apertures 17 and 18 characterized by a presence of detrimental extraneous foreign material during use of the air spring actuator assembly, a first substantially vertically disposed plate like member or right side of element 14, the first substantially vertically disposed plate like member having a first substantially planar surface engageable with a first surface of a second substantially vertically disposed plate like member or right side of element 11 attached to the at last one air bag spring, a substantially horizontally, disposed plate like member 22 connected to the first substantially vertically disposed plate like member adjacent a bottom edge thereof and extending substantially perpendicular to the first substantially planar surface of the

first substantially vertically disposed plate like member for shielding the at least said first portion of the exterior surface of the at least one air bag spring from the detrimental extraneous foreign material, a means 15 connected via intervening elements to a radially opposed second surface of the first substantially vertically disposed plate like member for securing the first substantially vertically disposed plate like member to a control linkage of a railway vehicle brake assembly, a third substantially vertically disposed plate like member or left side of element 14 having a second planar surface portion for engagement with a substantially planar surface portion of a fourth substantially vertically disposed plate like member or right side of element 11 connected to the at least one air bag spring, a guide means 13 connected to and disposed closely adjacent a first outer edge of and substantially perpendicular to at least one of the first substantially planar surface and the second planar surface portion of a respective one of the first and the third substantially vertically disposed plate like member for guiding and alignment during reciprocal motion of the air bag spring and a securing means connected to the third substantially vertically disposed plate like member for enabling attachment of the air spring actuator assembly to a rigid structure"

B. Response to Rejections

Examiner's attention is directed to column 1 lines 65-68 wherein Bilas teaches "An adjustable chamber reduction partition 13 is movably positioned within the housing 10 adjacent the closure plate 12 and has a down turned annular guide lip 14 extending from its perimeter edge ...". Further in column 2 lines 18-21, Bilas teaches "The air spring 19 is positioned on a movable head plate 22 having an outer diameter slightly less than that of said interior of said housing 10 as defined by said side wall 11".

It is clear that Bilas teaches a housing 10 having a round cross-section and further teaches an annular guide lip (ring) 14. Therefore, annular guide lip 14 does not anticipate or suggests "plate like member having a substantially planar surface" as asserted by the Examiner. The Appellant notes that annular guide lip (ring) cannot have a "right side" as understood by the Examiner. Equally as well, the element 14 cannot be a plate like member as asserted by the Examiner.

The Examiner further stated that "a substantially horizontally disposed plate like member 22 connected to the first substantially vertically disposed plate like member adjacent a bottom edge thereof". Bilas does not show that element 22 is connected to element 14 adjacent a bottom edge thereof.

Additionally Examiner understood that element 13 functions as a guide means. Bilas specifically recites that its element 14 is a "guide lip"

Therefore, Bilas prior art reference does not anticipate each and every limitation of the present invention of the dependent claim 9.

Claim 11

The Examiner's contention that Claim 11 is unpatentable under 35 U.S.C. 102(b) as being anticipated by Bilas (US Patent 4711464) is not believed to be well founded. It is the Examiner's position that Bilas anticipates every single element of the present invention of independent claim 11.

A. Examiner's rejections

Examiner contends that Bilas shows in figure 1 the means for limiting reciprocal motion being in the form of element 26.

B. Response to Rejections

Claim 11 of the present invention specifically recites "means disposed therein for limiting reciprocal motion of said air spring actuator during evacuation of air pressure from said at least one air bag spring."

Element 26 of Bias is a coiled spring which is compressed as air springs 19 fill (see column 2, lines 61-64 in Bilas). When air is evacuated from air spring 19, the coiled spring 26

extends but does not limit the reciprocal motion of the air spring 19.

Therefore, Bilas prior art reference does not anticipate each and every limitation of the present invention of the dependent claim 11.

Claim 12

The Examiner's contention that Claim 12 is unpatentable under 35 U.S.C. 102(b) as being anticipated by Bilas (US Patent 4711464) is not believed to be well founded. It is the Examiner's position that Bilas anticipates every single element of the present invention of independent claim 12.

A. Examiner's rejections

Examiner contends that Bilas shows in figure 1 the means for limiting reciprocal motion being in the form of element 24.

B. Response to Rejections

Appellant assert that element 24 has no effect on controlling reciprocal motion of the air spring actuator during evacuation of air from air spring 19.

Therefore, Bilas prior art reference does not anticipate each and every limitation of the present invention of the dependent claim 12.

Claims 13 and 18

Group dependent claims 13 and 18 stand or fall with the independent claim 9.

In view of the forgoing arguments, it is requested that the final rejection of claims 1,2,5,6,9,11,12,13, and 18 under 35 U.S.C. 102(b) as being anticipated by US Patent 4711464 to Bilas be reversed, as this prior art patent clearly fails to disclose each and every limitation.

(7.2) Rejection under 35 U.S.C. 102(b) over US Patent 2879077 to Chalmers

Claims 1-9 and 13

Appellant respectfully disagrees with the Examiner's rejections for the following reasons.

Claim 1

The Examiner's contention that Claim 1 is unpatentable under 35 U.S.C. 102(b) as being anticipated by Chalmers (US Patent 2879077) is not believed to be well founded. It is the Examiner's position that Chalmers anticipates every single element of the present invention.

A. Examiner's rejections

The Examiner contends that regarding claim 1, Chalmers shows in figure 1 an actuating member capable of being used for

a railway vehicle brake assembly, such vehicle brake assembly having an air bag actuator shown in the area of element 12 incorporated therein, said actuating member comprising: a first substantially vertically disposed plate like member 10, said first substantially vertically disposed plate like having a first substantially planar surface engageable with a first surface of a second substantially vertically disposed plate like member 14 attached to such air bag actuator, a substantially horizontally disposed plate like member 50 connected to the first substantially vertically disposed plate like member adjacent a bottom edge thereof and extending substantially perpendicular to the first planar surface of the first vertically disposed plate member for shielding at least a first portion of the air bag actuator from foreign material as shown, and a means or aperture within element 10 (in an alternate interpretation see element 36) connected to a radially opposed second surface of the first vertically disposed plate like member for securing the actuating member to a control linkage 32 or 52 in another interpretation of the assembly".

B. Response to Rejections

The Examiner's attention is directed to column 2 lines 35 and FIG. 8, wherein Chalmers discloses and shows a "beam 10". Such beam 10 is formed by a U-shaped member which is horizontally disposed and a plurality of stiffener plates which

are vertically disposed. Therefore, the Examiner's assertion that beam 10 of Chalmers anticipates plate like member 66 of the present invention is believed to be in error.

Regarding the Examiner's assertion that element 50 of Chalmers anticipates the horizontally disposed element 64 of the present invention, the Examiner's attention is directed to Figures 1, wherein Chalmers shows that such element 50 is vertically disposed and further that such element 50 is a tubular member and, therefore, Examiner's assertion that member 50 of Chalmers anticipates horizontally disposed plate like member 64 of the present invention is believed to be in error.

Therefore, Chalmers prior art reference does not anticipate each and every limitation of the present invention of the independent claim 1.

Claim 2

A. Examiner's rejections

The Examiner contends that regarding claim 2, Chalmers shows in figure 1 wherein the actuating member further includes a first plate like member left side of element one of element 16 or 18 connected to an upper surface of the substantially horizontally disposed member via intervening elements and to the first planar surface of the first substantially vertically disposed plate like member adjacent a first side edge thereof

and extending substantially perpendicularly to at least the substantially horizontally disposed member for shielding at least a second portion (or bottom portion) of such air bag actuator from the detrimental extraneous foreign material and for providing added strength between the first substantially vertically disposed member and the substantially horizontally disposed member.

B. Response to Rejections

Appellant respectfully points out that element 16 of Chalmers is a C-channel as best shown in FIG. 3 and element 18 is a second beam as first disclosed in column 2 line 55 of Chalmers. Therefore, neither element anticipates a first plate like member (76) taught in claim 2 of the present invention. Furthermore, it is specifically recited in claim 2 that "first plate like member connected to an upper surface of said substantially horizontally disclosed member...". Since the Examiner admitted that element 50 anticipates substantially horizontally disclosed member (64) of the present invention and since element 50 is vertically disposed as best shown in Figure 1, such element 50 does not have an upper surface.

Therefore, Chalmers prior art reference does not anticipate each and every limitation of the present invention of the independent claim 2.

Claim 3

Claim 3 stands or falls with claim 1.

Claim 4

A. Examiner's rejections

The Examiner contends that regarding claim 4, Chalmers provides "In an alternate interpretation the first substantially vertically disposed plate like member can be element 16 which includes at least one mounting aperture shown in the area of element 22".

B. Response to Rejections

It appears that the Examiner deviated from previous understanding of Chalmers reference by asserting that it is the element 16 that now anticipates first substantially vertically disposed plate like member (66) of the present invention. In any case, Chalmers discloses in column 2 line 64 that "an orifice 22 connects the air cell 12 to the interior of the air beam 18 and provides a passage for the air to flow between these members." Accordingly, the aperture which is provided in element 16 in the area of orifice 22 is only suited to accommodate such orifice 22.

Therefore, Chalmers prior art reference does not anticipate each and every limitation of the present invention of the independent claim 4.

Claim 5

A. Examiner's rejections

The Examiner contends that regarding claim 5, Chalmers discloses *"The means connected to the opposed second surface of the first vertical plate like member includes in an alternate interpretation at least one plate member 18 and a pin member 32 disposed in the aperture"*.

B. Response to Rejections

Yet again, the Examiner uses the same element 18 to anticipate the distinctly independent elements of the present invention. Furthermore, Chalmers does not disclose or suggest the element 32 is employed for securing the actuator to a control linkage of any kind.

Therefore, Chalmers prior art reference does not anticipate each and every limitation of the present invention of the independent claim 5.

Claim 6

The Examiner's contention that Claim 6 is unpatentable under 35 U.S.C. 102(b) as being anticipated by Chalmers (US Patent 2879077) is not believed to be well founded. It is the Examiner's position that Chalmers anticipates every single element of the present invention of the independent claim 6.

A. Examiner's rejections

The Examiner contends that regarding claim 6, Chalmers "shows in figure 1 an apparatus for mounting an air bag actuator to at least one brake beam, the air bag actuator having at least one inflatable air bag spring 12, the apparatus comprising: a first substantially vertically disposed plate like member 10 having a planar surface portion for engagement with a substantially planar surface portion of a second substantially vertically disposed plate like member 14 connected to such air bag actuator, the first substantially vertically disposed plate like member exposing at least a first portion of an exterior surface of such at least one inflatable air bag spring to an atmospheric operating environment characterized by a presence of detrimental extraneous foreign when such railway car mounted brake assembly is in use, a guide means 32 directly connected to and disposed closely adjacent a first outer edge of and substantially perpendicular to the planar surface portion of the first substantially vertically disposed plate like member for guiding and alignment during reciprocal motion of such air bag actuator and a securing means 52 connected to the first substantially vertically disposed plate like member for enabling attachment of the apparatus to a rigid structure".

B. Response to Rejections

Appellant already asserted above regarding claim 1 that the Examiner erred in using the beam 10 of Chalmers to anticipate a vertically disposed plate like member 66 of the present invention.

Examiner's attention is now directed to column 3, lines 3-5 wherein Chalmers discloses that rod 32 passes through an opening 34 in the air beam 18 with clearance therebetween to allow freedom for relative movement". Such "freedom of relative movement" is contradictory to the purpose of guiding and alignment.

The element 52 that the Examiner admitted is a "securing means 52 for enabling attachment of the apparatus to a rigid structure" is disclosed in column 2 lines 45-46 as a brace and is shown in Figure 1 as having a first end thereof being attached the element 10 and having a second end thereof connected to the element 50 which also has one end attached to the element 50 and the other end adapted for rotatably receiving link 54. Chalmers does not suggest or disclose that such brace 52 is used for attaching the apparatus to the rigid structure.

Therefore, Chalmers prior art reference does not anticipate each and every limitation of the present invention of the independent claim 6.

Claim 7

Claim 7 stands or falls with claim 6.

Claim 8

A. Examiner's rejections

The Examiner contends that regarding claim 8, Chalmers discloses "The means connected to the opposed second surface of the first vertical plate like member includes in an alternate interpretation at least one plate member 18 and a pin member 32 disposed in the aperture".

B. Response to Rejections

Appellant believes that Chalmers does not disclose or suggest at least one aperture of claim 8 for attaching the planar surface of either element 10 or element 18 to the air bag actuator 12.

Therefore, Chalmers prior art reference does not anticipate each and every limitation of the present invention of the independent claim 8.

Claim 9

The Examiner's contention that Claim 9 is unpatentable under 35 U.S.C. 102(b) as being anticipated by Chalmers (US Patent 2879077) is not believed to be well founded. It is the Examiner's position that Chalmers anticipates every single element of the present invention of the independent claim 9.

A. Examiner's rejections

The Examiner contends that regarding claim 9, Chalmers "shows in figure 1 an air spring actuator assembly, the air spring actuator assembly comprising: at least one air bag spring 12 having at least a first portion of an exterior surface exposed to an atmospheric operating environment characterized by a presence of detrimental extraneous foreign material during use of the air spring actuator assembly, a first substantially vertically disposed plate like member 10, the first substantially vertically disposed plate like member having a first substantially planar surface engageable with a first surface of a second substantially vertically disposed plate like member 14 attached to the at least one air bag spring, a substantially horizontally disposed plate like member 50 connected to the first substantially vertically disposed plate like member adjacent a bottom edge thereof and extending substantially perpendicular to the first substantially planar surface of the first substantially vertically disposed plate like member for shielding the at least said first portion of the exterior surface of the at least one air bag spring from the detrimental extraneous foreign material, a means or aperture within 10 surrounding element 32 connected to a radially opposed second surface of the first substantially vertically disposed plate like member to a control linkage 32 of a railway vehicle

brake assembly, a third substantially vertically disposed plate like member 18 having a second planar surface portion for engagement with a substantially planar surface portion of a fourth substantially vertically disposed plate like member 16 connected to the at least one air bag spring, a guide means 36 connected to and disposed closely adjacent a first outer edge of and substantially perpendicular to at least one of the first substantially planar surface and the second planar surface portion of a respective one of the first and the third substantially vertically disposed plate like member for guiding and alignment during reciprocal motion of the air bag spring and a securing means connected to the third substantially vertically disposed plate like member for enabling attachment of the air spring actuator assembly to a rigid structure."

B. Response to Rejections

The Appellant asserted above that beam 10 of Chalmers does not anticipate plate like member (66) of the present invention.

The Appellant also asserted above that vertically disposed tubular element 50 does not anticipate horizontally disposed plate like member (64) of the present invention.

The Appellant believes that the Examiner's understanding that Chalmers provides "an aperture within 10 surrounding element 32 connected to a radially opposed second surface of the first substantially vertically disposed plate like member to a

control linkage 32 of a railway vehicle brake assembly" appears to be in error. Chalmers does not disclose or suggests aperture within element 10 and further Chalmers is moot on connecting the air spring actuator assembly to a control linkage of the railway vehicle.

The Appellant demonstrated above that beam 18 of Chalmers does not anticipate plate like member (82) of the present invention.

Furthermore, the Examiner failed to show exactly how Chalmers anticipates the securing means of the present invention of independent claim 9.

Therefore, Chalmers prior art reference does not anticipate each and every limitation of the present invention of the independent claim 9.

Claim 13

Claim 13 stands or falls with claim 9.

In view of the forgoing arguments, it is requested that the final rejection of claims 1-9 and 13 under 35 U.S.C. 102(b) as being anticipated by US Patent 2879077 to Chalmers be reversed, as this prior art patent clearly fails to disclose each and every limitation.

(7.3) Rejection under 35 U.S.C. 103(a) over US Patent 4711464 to Bilas in view of US Patent 6142480 to Streitman et al.

Claims 1, 2, 5, 6, 9, 11, 12, 13, and 18

Appellant respectfully disagrees with the Examiner's rejections for the following reasons.

A. Examiner's rejections

The Examiner contends that Bilas is silent with regards to the operating environment being characterized by a presence of detrimental extraneous foreign material.

The Examiner further contends that Streitman et al. teach in col. 1 the use of a railway vehicle brake being in the environment characterized by a presence of detrimental extraneous foreign material.

Therefore, the Examiner concluded that "It would have been obvious to one of ordinary skill in the art at the time the invention was made to have included a surrounding environment characterized by detrimental extraneous foreign material, as taught by Streitman et al., since it is old and well-known in the art that vehicles produce emissions that are byproducts of the generated power for the vehicle".

B. Response to Rejections

It has been held that to establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180

USPQ 580 (CCPA 1974). Furthermore it has been held that "All words in a claim must be considered in judging the patentability of that claim against the prior art." *In re Wilson*, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970). Additionally it has been held that if an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious. *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988).

Since Bilas prior art reference does not teaches or suggests all the claim limitations of each independent claim 1, 6 and 9, the combination of Bilas in view of Streitman et al. fails to establish *prima facie* obviousness of claimed inventions of such independent claim 1, 6 and 9.

Accordingly, claims 2 and 5 which are depending from claim 1, claims 11-13 and claim 18 which are depending from claim 9 are also nonobvious.

Furthermore, it has been held that "in determining whether the invention as a whole would have been obvious under 35 U.S.C. 103, we must first delineate the invention as a whole. In delineating the invention as a whole, we look not only to the subject matter which is literally recited in the claim in question... but also to those properties of the subject matter which are inherent in the subject matter and are disclosed in the specification... Just as we look to a chemical and its properties when we examine the obviousness of a composition of

matter claim, it is this invention as a whole, and not some part of it, which must be obvious under 35 U.S.C. 103." *In re Antonie*, 559 F.2d 618, 620, 195 USPQ 6,8 (CCPA 1977).

The Examiner admitted that "it is old and well-known in the art that vehicles produce emissions that are byproducts of the generated power for the vehicle".

The examiner's attention is directed to page 14, lines 14-15 wherein it is recited that "first surface portion 66 protects air spring actuator 50 from foreign objects during railway vehicle movements". Appellant asserts that it is inherent during operation of the railway vehicle for the brake assembly to be damaged by foreign objects which are disposed within the rails and therefore are present within the operating environment of the brake assembly. Since the air spring actuator which includes an inflatable elastomeric member is exposed to such environment and can be easily damaged, the present invention provides for means to shield at least a portion of the exterior surface of the inflatable elastomeric member from such foreign objects and not from "the emissions which are byproducts of the generated power for the vehicle."

In view of the forgoing arguments, it is requested that the final rejection of claims 1,2,5,6,9,11,12,13, and 18 under 35 U.S.C. 103(a) over US Patent 4711464 to Bilas in view of US Patent 6142480 to Streitman et al. be reversed, as the

combination fails to establish *prima facie* obviousness of claimed inventions.

(7.4) Rejection under 35 U.S.C. 103(a) over US Patent 2879077 to Chalmers in view of US Patent 6142480 to Streitman et al.

Appellant respectfully disagrees with the Examiner's rejections for the following reasons.

Claims 1-9 and 13

A. Examiner's rejections

The Examiner contends that Chalmers is silent with regards to the operating environment being characterized by a presence of detrimental extraneous foreign material.

The Examiner further contends that Streitman et al. teach in col. 1 the use of a railway vehicle brake being in the environment characterized by a presence of detrimental extraneous foreign material.

Therefore, the Examiner concluded that "It would have been obvious to one of ordinary skill in the art at the time the invention was made to have included a surrounding environment characterized by detrimental extraneous foreign material, as taught by Streitman et al., since it is old and well-known in the art that vehicles produce emissions that are byproducts of the generated power for the vehicle."

B. Response to Rejections

Since Chalmers prior art reference does not teach or suggest all the claim limitations of each independent claim 1, 6 and 9, the combination of Chalmers in view of Streitman et al. does not establish *prima facie* obviousness of claimed inventions of such independent claim 1, 6 and 9.

Accordingly, claims 2-5 which are depending from claim 1, and claim 13 which is depending from claim 9 are also nonobvious.

In view of the forgoing arguments, it is requested that the final rejection of claims 1-9 and 13 under 35 U.S.C. 103(a) over US Patent 2879077 to Chalmers in view of US Patent 6142480 to Streitman et al. be reversed, as the combination fails to establish *prima facie* obviousness of claimed inventions.

(7.5) Rejection under 35 U.S.C. 103(a) over US Patent 4711464 to Bilas in view of US Patent 6142480 to Streitman et al. as applied to claim 9 above, and further in view of US Patent 4846785 to Cassou et al.

Appellant respectfully disagrees with the Examiner's rejections for the following reasons.

Claims 16-17

Group dependent claims 16-17 stand or fall with independent claim 9.

Therefore, it is requested that the final rejection of claims 16-17 under 35 U.S.C. 103(a) over US Patent 4711464 to Bilas in view of US Patent 6142480 to Streitman et al. as applied to claim 9 above, and further in view of US Patent 4846785 to Cassou et al. be reversed.

(7.6) Rejection under 35 U.S.C. 103(a) over Admitted prior art recited above the "improvement" phrase in claim 19 in view of Bilas.

Claims 19-21

Appellant respectfully disagrees with the Examiner's rejections for the following reasons.

Claim 19

A. Examiner's rejections

Examiner contends that the admitted prior art recites the railway environment, but the admitted prior art is silent as to the specific detail of the air spring actuator.

Examiner contends that the Bilas teaches in figure 1 an air spring actuator 10 comprising: a first substantially vertically disposed plate like member or right element 14 having a first

substantially planar surface and a means 15 connected to the first substantially vertically disposed plate like member for securing the air spring actuator to such second control linkage, a second substantially vertically disposed plate like member or right element 27 having a second substantially planar surface and a means 23 connected to the second substantially vertically disposed plate like member for securing the air spring actuator to one of the brake beam, such second force transmitting member and a combination thereof, and at least one inflatable air bag spring 19 having a pair of substantially vertically disposed planar surfaces (left side of element 14 and left side of element 27) for engagement with and attachment to the first substantially planar surface of the first substantially vertically disposed plate like member and the second substantially planar surface of the second substantially vertically disposed plate like member whereby selective inflation and deflation of the at least one inflatable air bag spring in a longitudinal direction enables a reciprocal motion thereof to move such control linkages and such force transmitting members for actuating and deactuating such brake beams wherein an exterior surface of the at least one inflatable air bag spring is at least partially exposed within such brake assembly to an atmosphere when such brake assembly is in use by virtue of the apertures 17 and 18.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the air spring actuator of the admitted prior art to have included an air spring actuator, as taught by Bilas, in order to provide a means of relieving excessive pressure conditions by continuously exposing the area of the actuator above element 13 to the environment. With regards to claims 20 and 21, see element 13' as the means for shielding and guiding and aligning".

B. Response to Rejections

It has been shown that element 14 of Bilas being an annular flange does not anticipate the first plate like member (66) of the present invention of claim 19.

Equally as well, element 27 which is another annular flange does not anticipate second plate like member (82) of the present invention of claim 19.

Accordingly, the combination of admitted prior art and Bilas fails to teach all claims limitations and fails to establish *prima facie* obviousness of claimed invention.

Furthermore, it has been held that "A prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention". *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), *cert. denied*, 469 U.S. 851 (1984)

Accordingly, Bilas, when considered in its entirety, provides for air spring actuator which is disposed and operates within the cylindrical housing 10 closed by a pair of end plates 12 and 25. Therefore, the combination of admitted prior art and Bilas would have suggested to one of ordinary skill in the art to fully enclose the air spring actuator of the present invention into the cylindrical housing closed by the pair of end plates.

However, the present invention provides an air spring actuator including an inflatable air spring which has exterior surface exposed within the railway mounted brake assembly.

Additionally, it is believed that the Examiner's understanding that the present invention "provides a means of relieving excessive pressure conditions..." is in error since the present invention is moot on the need to relieve excessive pressure.

Claims 20

Group dependent claim 20 stands or falls with independent claim 19.

Claim 21

A. Examiner's rejections

Examiner contends that element 13 provides the means for shielding and guiding and aligning.

B. Response to Rejections

Bilas discloses in column 1 lines 66-68 annular guide lip 14 which extends from the perimeter of the partition 13 which is movable positioned within the housing 13. Since, Bilas was compelled to provide specific guide lip 14, the Examiner's position that element 13 is suitable for use as a guide means is in error.

Therefore, it is requested that the final rejection of claims 19-21 under 35 U.S.C. 103(a) over Admitted prior art recited above the "improvement" phrase in claim 19 in view of Bilas be reversed.

(7.7) Rejection under 35 U.S.C. 103(a) over Admitted prior art recited above the "improvement" phrase in claim 19 in view of Bilas and further in view of US Patent 6142480 to Streitman et al.

Claims 19-21

Since the Appellant soundly demonstrated that combination of admitted prior art in claim 19 in view of Bilas fails to anticipate each and every limitation of the claimed invention and therefore fails to establish *prima facie* obviousness of

claimed invention, it is requested that the final rejection of claims 19-21 under 35 U.S.C. 103(a) over Admitted prior art recited above the "improvement" phrase in claim 19 in view of Bilas and further in view of US Patent 6142480 to Streitman et al. be reversed.

(7.8) Rejection under 35 U.S.C. 103(a) over Admitted prior art recited above the "improvement" phrase in claim 19 in view of Chalmers.

Claims 19-21

Appellant respectfully disagrees with the Examiner's rejections for the following reasons.

Claim 19

A. Examiner's rejections

Examiner contends that "the admitted prior art recites the railway environment, but the admitted prior art is silent as to the specific detail of the air spring actuator".

The Examiner further contends that Chalmers "teaches in figure 1 an air spring actuator comprising: a first substantially vertically disposed plate like member or right element 10 having a first substantially planar surface and a means 52 connected to the first substantially vertically disposed plate like member for securing the air spring actuator

to such second control linkage, a second substantially vertically disposed plate like member or right element 14 having a second substantially planar surface and a means 50 connected to the second substantially vertically disposed plate like member for securing the air spring actuator to one of the brake beam, such second force transmitting member and a combination thereof, and at least one inflatable air bag spring 12 having a pair of substantially vertically disposed planar surfaces 16 and 18 for engagement with and attachment to the first substantially planar surface of the first substantially vertically disposed plate like member and the second. substantially planar surface of the second substantially vertically disposed plate like member whereby selective inflation and deflation of the at least one inflatable air bag spring in a longitudinal direction enables a reciprocal motion thereof to move such control linkages and such force transmitting.. members for actuating and deactuating such brake beams wherein an exterior surface of the at least one inflatable air bag spring is at least partially exposed within such brake assembly to an atmosphere when such brake assembly is in use as shown."

Therefore, the Examiner concludes that "It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the air spring actuator of the admitted prior art to have included an air spring actuator,

as taught by Chalmers, in order to provide a means of exposing the actuator to reduce assembly weight."

B. Response to Rejections

It has been shown that element 10 of Chalmers being a beam does not anticipate the first plate like member (66) of the present invention of claim 19.

Equally as well, it has been shown that Chalmers does not teach or suggest that element 52 which is a tubular brace be employed as means for connecting to control linkage.

Furthermore, it has been shown that that Chalmers does not teach or suggest that tubular member 50 is capable of securing the air spring actuator to one of the brake beam.

Accordingly, the combination of admitted prior art and Chalmers fails to teach all claims limitations and fails to establish *prima facie* obviousness of claimed invention.

Additionally, the Examiner's understanding that Chalmers prior art reference is capable of reducing weight of the air spring actuator of the admitted prior art is believed to be in error. Chalmers, taken in its entirety, teaches complex beam elements 10 and 18 which include a plurality of reinforcing members that would increase weight of the air spring actuator.

Claim 20

A. Examiner's rejections

Examiner contends that element 32 provides means for shielding and guiding and aligning.

B. Response to Rejections

Chalmers fails to disclose or suggest that rod 32 is capable of shielding at least a portion of the exterior surface of the air spring 12. Therefore, the Examiner's contention that element 32 provides means for shielding is appears to be in error.

Claim 21

Dependent claim 21 stands or falls with independent claim 19.

Therefore, it is requested that the final rejection of claims 19-21 under 35 U.S.C. 103(a) over Admitted prior art recited above the "improvement" phrase in claim 19 in view of Chalmers be reversed.

(7.8) Rejection under 35 U.S.C. 103(a) over Admitted prior art recited above the "improvement" phrase in claim 19 in view of Chalmers and further in view of US Patent 6142480 to Streitman et al.

Claims 19-21

Since the Appellant soundly demonstrated that combination of admitted prior art in claim 19 in view of Chalmers fails to anticipate each and every limitation of the claimed invention and therefore fails to establish *prima facie* obviousness of claimed invention, it is requested that the final rejection of claims 19-21 under 35 U.S.C. 103(a) over Admitted prior art recited above the "improvement" phrase in claim 19 in view of Chalmers and further in view of US Patent 6142480 to Streitman et al. be reversed.

(7.9) Conclusion

In view of the above considerations, and regarding the rejections of claims, it is respectfully submitted that the Examiner erred in objecting to the drawings and finally rejecting:

1. Claims 1,2,5,6,9,11,12,13, and 18 under 35 U.S.C. 102(b) as being anticipated by US Patent 4711464 to Bilas;

2. Claims 1-9 and 13 under 35 U.S.C. 102(b) as being anticipated by US Patent 2879077 to Chalmers;

3. Claims 1,2,5,6,9,11, 12, 13, and 18 under 35 U.S.C. 103(a) over US Patent 4711464 to Bilas in view of US Patent 6142480 to Streitman et al.;

4. Claims 1-9 and 13 under 35 U.S.C. 103(a) over US Patent 2879077 to Chalmers in view of US Patent 6142480 to Streitman et al.;

5. Claims 16 and 17 under 35 U.S.C. 103(a) over Bilas in view of Streitman et al. as applied to claim 9 above, and further in view of US Patent 4846785 to Cassou et al.;

6. Claims 19, 20, and 21 under 35 U.S.C. 103(a) over Admitted prior art recited above the "improvement" phrase in claim 19 in view of Bilas.;

7. Claims 19-21 under 35 U.S.C. 103(a) over Admitted prior art in view of US Patent 4711464 to Bilas and further in view of US Patent 6142480 to Streitman et al.;

8. Claims 19, 20, and 21 under 35 U.S.C. 103(a) over Admitted prior art recited above the "improvement" phrase in claim 19 in view of Chalmers.; and

9. Claims 19-21 under 35 U.S.C. 103(a) over Admitted prior art in view of Chalmers and further in view of US Patent 6142480 to Streitman et al.

For the reasons set forth above, it is respectfully requested that the objection to the drawings and final rejection of the claims be reversed.

Respectfully submitted,

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(8) Claims

1. An actuating member for a railway vehicle brake assembly, such railway vehicle brake assembly having an air bag actuator incorporated therein, said air bag actuator having at least one inflatable air bag spring, said actuating member comprising:

(a) a first substantially vertically disposed plate like member, said first substantially vertically disposed plate like member having a first substantially planar surface engageable with a first surface of a second substantially vertically disposed plate like member attached to such air bag actuator, said first substantially vertically disposed plate like member exposing at least a first portion of an exterior surface of such at least one inflatable air bag spring to an atmospheric operating environment characterized by a presence of detrimental extraneous foreign material when such railway car mounted brake assembly is in use;

(b) a substantially horizontally disposed plate like member connected to said first substantially vertically disposed plate like member adjacent a bottom edge thereof and extending substantially perpendicular to said first substantially planar surface of said first substantially vertically disposed plate like member for shielding at least said first portion of said

exterior surface of such air bag actuator from said detrimental extraneous foreign material; and

(c) a means connected to a radially opposed second surface of said first substantially vertically disposed plate like member for securing said actuating member to a control linkage of such railway vehicle brake assembly.

2. An actuating member, according to claim 1, wherein said actuating member further includes a first plate like member connected to an upper surface of said substantially horizontally disposed member and to said first planar surface of said first substantially vertically disposed plate like member adjacent a first side edge thereof and extending substantially perpendicular to at least said substantially horizontally disposed member for shielding at least a second portion of such air bag actuator from said detrimental extraneous foreign material and for providing added strength between said first substantially vertically disposed member and said substantially horizontally disposed member.

3. (An actuating member, according to claim 2, wherein said actuating member further includes a second plate like member connected to said upper surface of said substantially horizontally disposed member and to said first planar surface of

said first substantially vertically disposed plate like member adjacent a second side edge thereof and extending substantially perpendicular to at least said substantially horizontally disposed member for shielding at least a third portion of such air bag actuator from said detrimental extraneous foreign material and for providing added strength between said first substantially vertically disposed member and said substantially horizontally disposed member.

4. An actuating member, according to claim 1, wherein said first substantially vertically disposed plate like member includes at least one mounting aperture formed therethrough for enabling securing of such air bag actuator to said first substantially vertically disposed plate like member.

5. An actuating member, according to claim 1, wherein said means connected to said radially opposed second surface of said substantially first vertically disposed plate like member for securing said actuating member to such control linkage of such railway vehicle brake assembly includes at least one plate member having an aperture formed therethrough and a pin member disposed in said aperture for securing said at least one plate member to such control linkage.

6. An apparatus for mounting an air bag actuator to at least one brake beam, said air bag actuator having at least one inflatable air bag spring, said apparatus comprising:

(a) a first substantially vertically disposed plate like member having a planar surface portion for engagement with a substantially planar surface portion of a second substantially vertically disposed plate like member connected to such air bag actuator, said first substantially vertically disposed plate like member exposing at least a first portion of an exterior surface of such at least one inflatable air bag spring to an atmospheric operating environment characterized by a presence of detrimental extraneous foreign when such railway car mounted brake assembly is in use;

(b) a guide means directly connected to and disposed closely adjacent a first outer edge of and substantially perpendicular to said planar surface portion of said first substantially vertically disposed plate like member for guiding and alignment during reciprocal motion of such air bag actuator; and

(c) a securing means connected to said first substantially vertically disposed plate like member for enabling attachment of said apparatus to a rigid structure.

7. An apparatus, according to claim 6, wherein said apparatus includes a second guide means, said second guide means directly connected to and disposed closely adjacent a second outer edge of and substantially perpendicular to said planar surface portion of said first substantially vertically disposed plate like member for guiding and alignment during reciprocal motion of such air bag actuator.

8. An apparatus, according to claim 6, wherein said planar surface portion of said first substantially vertically disposed plate like member includes at least one aperture formed therethrough for enabling attachment to such air bag actuator.

9. An air spring actuator assembly, said air spring actuator assembly comprising:

(a) at least one air bag spring having at least a first portion of an exterior surface exposed to an atmospheric operating environment characterized by a presence of detrimental extraneous foreign material during use of said air spring actuator assembly;

(b) a first substantially vertically disposed plate like member, said first substantially vertically disposed plate like member having a first substantially planar surface engageable with a first surface of a second substantially vertically

disposed plate like member attached to said at least one air bag spring;

(c) a substantially horizontally disposed plate like member connected to said first substantially vertically disposed plate like member adjacent a bottom edge thereof and extending substantially perpendicular to said first substantially planar surface of said first substantially vertically disposed plate like member for shielding said at least said first portion of said exterior surface of said at least one air bag spring from said detrimental extraneous foreign material;

(d) a means connected to a radially opposed second surface of said first substantially vertically disposed plate like member for securing said first substantially vertically disposed plate like member to a control linkage of a railway vehicle brake assembly;

(e) a third substantially vertically disposed plate like member having a second planar surface portion for engagement with a substantially planar surface portion of a forth substantially vertically disposed plate like member connected to said at least one air bag spring;

(f) a guide means connected to and disposed closely adjacent a first outer edge of and substantially perpendicular to at least one of said first substantially planar surface and said second planar surface portion of a respective one of said

first and said third substantially vertically disposed plate like member for guiding and alignment during reciprocal motion of such air bag spring; and

(g) a securing means connected to said third substantially vertically disposed plate like member for enabling attachment of said air spring actuator assembly to a rigid structure.

10. An air spring actuator assembly, according to claim 9, wherein said means connected to a radially opposed second surface of said first substantially vertically disposed plate like member for securing said first substantially vertically disposed plate like member to a control linkage of a railway vehicle brake assembly includes a push rod and a shield member for substantially protecting said at least one air bag spring from foreign matter damage.

11. An air spring actuator assembly, according to claim 9, wherein said air spring actuator assembly further includes means disposed therein for limiting reciprocal motion of said air spring actuator during evacuation of air pressure from said at least one air bag spring.

12. An air spring actuator assembly, according to claim 11, wherein said means for limiting reciprocal motion of said brake

actuator is a rigid member disposed internally within said air spring actuator.

13. An air spring actuator assembly, according to claim 9, wherein said air spring actuator further includes an air inlet in communication with said at least one air bag spring.

14.-15. (Canceled)

16. An air spring actuator assembly, according to claim 9, wherein said air spring actuator further includes a means for visual determination of a travel length of said air spring actuator.

17. An air spring actuator assembly, according to claim 16, wherein said visual travel determination means is a linear measuring device.

18. (An air spring actuator assembly, according to claim 9, wherein said air spring actuator assembly further includes means disposed therein for controlling volume of air in said at least one air bag spring.

19. In a railway car mounted brake assembly including a pair of brake beams mounted at each end of such car mounted brake assembly, each of such brake beams having a brake head attachable to each end thereof, each of such brake heads carrying a brake shoe thereon, each of such brake heads being positioned for engagement of a respective one of such brake shoes with a respective railway vehicle wheel during a brake application, each of such brake beams having a control linkage pivotally attached thereto, a first force transmitting member attached to opposed first ends of each of such control linkages and a second force transmitting member attached to a second end of one of such control linkage and longitudinally extending toward a respectively opposed second end of such control linkage: the improvement comprising an air spring actuator connectable to and disposed intermediate such second force transmitting member and such second control linkage for applying and releasing such brake beams, said air spring actuator comprising:

(a) a first substantially vertically disposed plate like member having a first substantially planar surface and a means connected to said first substantially vertically disposed plate like member for securing said air spring actuator to such second control linkage;

(b) a second substantially vertically disposed plate like member having a second substantially planar surface and a means connected to said second substantially vertically disposed plate like member for securing said air spring actuator to one of such brake beam, such second force transmitting member and a combination thereof; and

(c) at least one inflatable air bag spring having a pair of substantially vertically disposed planar surfaces for engagement with and attachment to said first substantially planar surface of said first substantially vertically disposed plate like member and said second substantially planar surface of said second substantially vertically disposed plate like member, whereby selective inflation and deflation of said at least one inflatable air bag spring in a longitudinal direction enables a reciprocal motion thereof to move such control linkages and such force transmitting members for actuating and deactuating such brake beams, wherein an exterior surface of said at least one inflatable air bag spring is at least partially exposed within such railway car mounted brake assembly to an atmosphere when such railway car mounted brake assembly is in use.

20. The improvement according to claim 19, wherein said air spring actuator includes means attached to said first substantially vertically disposed plate like member for

shielding at least a portion of said at least one inflatable air bag spring from detrimental extraneous foreign material.

21. The improvement according to claim 19, wherein said air spring actuator includes means disposed with said first substantially vertically disposed plate like member and said second substantially vertically disposed plate like member for guiding and alignment thereof during said reciprocal motion of said at least one inflatable air bag spring.

(9) Evidence Appendix page(s)

NONE

10) Related Proceedings Appendix page(s)

NONE